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DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MAP SHOWING OUTCROPS AND LITHOLOGY OF INTRUSIVE ROCKS, BASIN AND RANGE PROVINCE AND VICINITY, TRANS-PECOS TEXAS

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MAP SHOWING OUTCROPS AND LITHOLOGY OF INTRUSIVE ROCKS, BASIN AND RANGE PROVINCE AND VICINITY, TRANS-PECOS TEXAS

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INTRODUCTION

This map report is one of a series of geologic and hydrologic maps covering all or parts of the States within the Basin and Range province of the western United States, resulting from work under the U.S. Geological Survey's program for geologic and hydrologic evaluation of the Basin and Range province to identify potentially suitable regions for future study relative to isolation of high-level nuclear waste (Bedinger, Sargent, and Reed, 1984).

This map report on the intrusive rocks of Trans-Pecos Texas was prepared from published maps and reports utilizing the project guidelines of Sargent and Bedinger (1984). On the map the outcrops of igneous intrusive rocks are grouped in numbered county areas, and in the Description of Map Units, the geologic, and, if available, radiometric age, type of intrusive body, lithologic composition, identity of the geologic units intruded, and the sources of data on the rocks in each county area are discussed.

The intrusive igneous rocks of the Trans-Pecos region are alkaline in character. The rocks in the western part are largely metaluminous and those in the eastern part, peralkaline and feldspathoidal (Barker, 1977, 1979).

The intrusions include both those related to volcanic calderas and those not related. The former are principally resurgent domes and ring-fracture intrusions associated with the large calderas shown on the map. The resurgent domes probably are offshoots of magma chambers underlying the calderas. The non-caldera-related intrusions include concordant and semi-concordant bodies, such as sills, laccoliths, and trap-door laccoliths, and non-concordant bodies, such as stocks and dikes. Some stocks may actually be laccoliths, but the exact shape of the bodies is not readily determined on outcrop.

All but two of the intrusions in the Trans-Pecos region are of Tertiary age. The Red Bluff Granite (Thomann, 1981) in the Franklin Mountains and small outcrops of granite on the south flanks of the Hueco Mountains are of Precambrian age. The silicic, igneous rocks were intruded mainly during the Oligocene, between 38 and 28 million years ago (Henry and McDowell, 1982). Intrusion of mafic rocks also occurred principally within the same time period, but the activity continued on a diminishing scale into the Miocene.

DESCRIPTION OF MAP UNITS

County-area number	Map symbol	Latitude (North) Longitude (West)	Geologic and radiometric age in millions of years (m.y.)	Intrusive type, lithology, and comments	References for county area
		MAP SHEET 1 (Part of Van Horn - El Paso Sheet)			
		CULBERSON COUNTY (C)			
C-1	Ts	31°26' 104°54'	Oligocene 36.7±0.4, 36.2±0.4 m.y. (C.D. Henry, Texas Bureau of Economic Geology, unpublished data)	Stock, syenite, intruded Permian Hueco Limestone; considerable hydrothermal alteration.	King, 1965; Sharp, 1979
C-2	Tqm	31°26' 104°53'	Oligocene 34.5±0.5 m.y. (C.D. Henry, unpublished data)	Stock, breccia pipe, breccia-quartz monzonite, intruded Permian Hueco Limestone; considerable hydrothermal alteration.	King, 1965; Sharp, 1979
C-3	Tb	31°00' 104°54'	Tertiary	Sill, basalt, intruded between schists of Precambrian Carrizo Mountain Group and Precambrian(?) Van Horn Sandstone.	King, 1965
		EL PASO COUNTY (E)			
E-1	Ts	31°53' 106°34'	Tertiary	Stock, syenite, surrounded by Quaternary and Tertiary basin fill.	Hoffer, 1970
E-2	Ts	31°52' 106°33'	Tertiary	Stock, syenite, intruded Cretaceous sedimentary rocks.	Hoffer, 1970
E-3	Ts	31°47' 106°30'	Tertiary 48.3±2.3 m.y.	Stock, syenite, intruded Cretaceous Boquillas Formation.	Hoffer, 1970
E-4	Ts	31°58' 106°05'	Tertiary	Stock, syenite, mostly surrounded by alluvium; roof pendant of Permian Hueco Limestone.	Wise, 1977
E-5	Tt	31°57' 106°04'	Tertiary	Stock, trachyte, surrounded by alluvium.	Wise, 1977
E-6	Ts	31°59' 106°03'	Tertiary	Sill, syenite; rock above sill is Permian Hueco Limestone, below is Pennsylvanian Magdalena Formation.	Wise, 1977
E-7	Ts	31°58' 106°02'	Tertiary	Sill-laccolith, syenite, rock above sill is Permian Hueco Limestone, below is Pennsylvanian Magdalena Formation.	Wise, 1977
E-8	Ts	31°55' 106°03'	Tertiary ~36 m.y.	Stock, syenite, surrounded by alluvium.	Wise, 1977

E-9	Ts	31°55' 106°01'	Tertiary	Sill, syenite; rock above sill is Permian Hueco Limestone, below Pennsylvanian Magdalena Formation.	Wise, 1977
E-10	Ts	31°55' 106°29'	Precambrian ~950 m.y.	Stock (Red Bluff Granite), intrusive equivalent of rhyolites of Thunderbird Group, which it intrudes along with Precambrian marble, quartzite, and basalt.	Denison and Hetherington, 1969; Thomann, 1981

HUDSPETH COUNTY (H)

H-1	Ts	31°59' 105°59'	Tertiary	Laccolith, syenite, intruded Permian Hueco Limestone.	Wise, 1977
H-2	Ts	31°57' 105°58'	Tertiary 34.3±0.5 m.y. (F.W. McDowell, University of Texas, Austin, unpublished data)	Stock, syenite, intruded Permian Hueco Limestone.	Wise, 1977
H-3	Ts	31°54' 105°58'	Tertiary	Sill, syenite, intruded Permian Hueco Limestone.	Wise, 1977
H-4	Tfs	32°00' 105°33'	Tertiary	Laccolith, nepheline syenite, intruded Permian and Cretaceous rocks.	Barker and others, 1977
H-5	Tfs	31°59' 105°31'	Tertiary	Sills, nepheline syenite, intruded Permian and Cretaceous sedimentary rocks.	Barker and others, 1977
H-6	Tfs	31°55' 105°32'	Tertiary	Sill, nepheline syenite, intruded Permian Hueco Limestone.	Barker and others, 1977
H-7	Tfs	31°54' 105°31'	Tertiary	Sill-discordant sheet, nepheline syenite, intruded Permian Hueco Limestone and Cretaceous Washita Group.	Barker and others, 1977
H-8	Tfs	31°52' 105°27'	Tertiary	Discordant sheet, nepheline syenite, intruded Permian Hueco Limestone and Cretaceous Washita Group.	Barker and others, 1977
H-9	Ts	31°52' 105°26'	Oligocene 34.9±0.6, 35.1±0.6, 36.1±0.6 m.y.	Dome, syenite, intruded Permian Hueco Limestone, and Cretaceous Washita Group.	Barker and others, 1977
H-10	Tfs	31°51' 105°26'	Tertiary	Discordant sheet, nepheline syenite, intruded Permian Hueco Limestone.	Barker and others, 1977
H-11	Tfs	31°53' 105°24'	Tertiary	Discordant sheet, nepheline syenite, intruded Permian Hueco Limestone.	Barker and others, 1977

H-12	Tfs	31°45' 105°28'	Tertiary	Cone sheet, nepheline syenite, intruded Permian Hueco Limestone.	Barker and others, 1977
H-13	pEg	31°40' 105°56'	Precambrian	Granite, overlain by Bliss Sandstone; host rock unknown.	Barnes, 1968
H-14	Tt	31°39' 105°18'	Tertiary	Discordant sheet, trachyte, intruded Permian Hueco Limestone and Cretaceous Washita Group.	Barker and others, 1977
H-15	Tfs	31°35' 105°10'	Tertiary	Discordant sheet, nepheline syenite, intruded Permian Hueco Limestone and Cretaceous Washita Group.	Barker and other, 1977
H-16	Ts	31°31' 105°36'	Tertiary	Sill, syenite, intruded Cretaceous Cox Sandstone.	Albritton and Smith, 1965
H-17	Ts	31°20' 105°34'	Tertiary	Dikes-sills, syenite, intruded Cretaceous Cox Sandstone and Finlay Limestone.	Albritton and Smith, 1965
H-18	Tr	31°17' 105°27'	Tertiary	Laccoliths, rhyolite, intruded shale and limestone of Cretaceous Washita Group.	Albritton and Smith, 1965
H-19	Tr	31°17' 105°23'	Tertiary	Laccolith, rhyolite, intruded Cretaceous Campagrande Formation.	Albritton and Smith, 1965
H-20	Tr	31°15' 105°26'	Oligocene 36.1±0.6 m.y. (C.D. Henry, unpublished data)	Laccolith, rhyolite, intruded shale and limestone of Cretaceous Washita Group.	Albritton and Smith, 1965
H-21	Tt	31°11' 105°22'	Tertiary	Dikes and sills, trachyte, intruded shale and limestone of Cretaceous Cox Sandstone and Finlay Limestone.	Albritton and Smith, 1965
H-22	Tqm	31°12' 105°29'	Oligocene 35.4±0.6 (F.W. McDowell, unpublished data)	Stock, quartz monzonite, intruded Cretaceous sedimentary rocks and Tertiary lava flows and ash-flow tuff.	Albritton and Smith, 1965
H-23	Tqm	31°07' 105°30'	Tertiary	Ring dike, quartz monzonite, intruded Cretaceous sedimentary rocks and Tertiary volcanic rocks.	Albritton and Smith, 1965

MAP SHEET 2
(Part of Fort Stockton and Marfa Sheets)

BREWSTER COUNTY (B)

B-1	Tpt	30°19' 103°45'	Tertiary	Dike, peralkaline trachyte, intruded Tertiary volcanic rocks.	Parker, 1976
B-2	Tu	30°20' 103°44'	Tertiary	Stock?, intruded Decie Formation (Tertiary), lava flows, and minor ash-flow tuff.	Parker, 1976, 1983
B-3	Tpr	30°19' 103°43'	Tertiary	Stock, peralkaline rhyolite, intruded lava flows and ash-flow tuff of Decie Formation (Tertiary).	Parker, 1976, 1983

B-4	Tpt	30°20' 103°42'	Tertiary	Stock, peralkaline trachyte, intruded lava flows, minor ash-flow tuff of Decie Formation (Tertiary).	Parker, 1976, 1983
B-5	Tu	30°21' 103°39'	Tertiary	Uncertain intrusive type, intruded Tertiary Crossen Trachyte lava flow.	Parker, 1976
B-6	Tfs	30°18' 103°46'	Tertiary	Stock, feldspathoidal syenite, intruded Tertiary volcanic rocks.	Parker, 1976
B-7	Tfs	30°17' 103°43'	Tertiary	Laccolith (trap-door) feldspathoidal syenite, intruded Tertiary volcanic rocks.	Parker, 1976
B-8	Tpt	30°18' 103°40'	Tertiary	Stock, peralkaline trachyte, intruded Tertiary volcanic rocks.	Parker, 1976
B-9	Ts	30°13' 103°44'	Tertiary	Sill, syenite, intruded tuffaceous sediments of Duff Formation (Tertiary).	McAnulty, 1955
B-10	Tfs	30°14' 103°39'	Tertiary	Laccolith (trap-door), feldspathoidal syenite, intruded Tertiary volcanic rocks, mostly lava flows.	Barnes, 1982; McAnulty, 1955
B-11	Tfs	30°13' 103°38'	Tertiary	Sill, feldspathoidal syenite, intruded Tertiary volcanic rocks, mostly lava flows.	McAnulty, 1955
B-12	Ts	30°08' 103°40'	Tertiary	Stock-laccolith, syenite, intruded Maxon Sandstone of Trinity Group, and Fredericksburg, and Washita Groups all of Cretaceous age and Tertiary volcanic rocks.	McAnulty, 1955
B-13	Tfs	30°31' 103°31'	Tertiary	Sill, feldspathoidal syenite, intruded tuffaceous sediments of Tertiary Pruett Formation.	McAnulty, 1955
B-14	Tu	30°17' 103°38'	Tertiary	Lithology unknown, intruded Tertiary volcanic rocks, mostly lava flows.	Parker, 1976
B-15	Tt	30°18' 103°37'	Tertiary	Trachyte?, intruded Tertiary volcanic rocks, mostly lava flows.	Parker, 1976
B-16	Tu	30°19' 103°36'	Tertiary	Lithology unknown, intruded Tertiary volcanic rocks, mostly lava flows.	Parker, 1976
B-17	Ts	30°21' 103°30'	Tertiary	Stock-breccia pipe in western outcrops, syenite, intruded Permian Capitan Limestone.	Parker, 1976
B-18	Tu	30°18' 103°32'	Tertiary	Lithology unknown, intruded Cretaceous Washita Group.	Barnes, 1982
B-19	Tt	30°19' 103°30'	Tertiary	Sill?, trachyte, intruded Permian Word Formation.	King, 1937
B-20	Ts	30°18' 103°31'	Tertiary	Stock, syenite, intruded Permian Cathedral Mountain Formation.	King, 1937

B-21	Tu	30°16' 103°34'	Tertiary	Lithology unknown.	Barnes, 1982
B-22	Tb	30°08' 103°28'	Tertiary	Laccolith, basalt, intruded Permian Capitan Limestone.	King, 1937
B-23	Ts	30°22' 103°12'	Tertiary	Syenite?, intruded between Neal Ranch and Skinner Ranch Formations of Permian age.	King, 1937
B-24	Ts	30°18' 103°16'	Tertiary	Stock, syenite, surrounded by alluvium.	King, 1937
B-25	Tpt	30°03 103°04'	Tertiary	Dike, peralkaline trachyte, intruded Pennsylvanian and Mississippian Tesnus Formation.	King, 1937
B-26	Tpr	30°02 103°05'	Tertiary	Dike, peralkaline rhyolite, intruded Pennsylvanian and Mississippian Tesnus Formation.	King, 1937

CULBERSON COUNTY (C)

C-1	Tr	30°50' 104°53'	Tertiary	Stock, rhyolite, intruded Tertiary tuffaceous sediments and lava flows.	Twiss, 1959
C-2	Tt	30°50' 104°50'	Tertiary	Stock, trachyte, intruded Cretaceous Cox Sandstone and Finlay Limestone.	Twiss, 1959
C-3	Tr	30°48' 104°52'	Tertiary	Stock, rhyolite, intruded Cretaceous Cox Sandstone and Finlay Limestone.	Twiss, 1959
C-4	Tqm, Tt	30°55' 104°43'	Tertiary	Stocks, quartz-monzonite, and trachyte intruded Tertiary tuffaceous sediments and lava flows.	Hay-Roe, 1957
C-5	Tr	30°49' 104°41'	Tertiary	Stock, rhyolite, intruded Tertiary tuffaceous sediments and lava flows.	Hay-Roe, 1957

HUDSPETH COUNTY (H)

H-1	Ts	30°55' 105°05'	Tertiary	Stock (resurgent dome), syenite, intruded Tertiary lava flows and ash-flow tuff.	Underwood, 1963
H-2	Tr	30°57' 105°04'	Tertiary	Stock, rhyolite, intruded Cretaceous limestone and shale.	Underwood, 1963
H-3	Tr	30°51' 105°00'	Tertiary	Stock, rhyolite, intruded Cretaceous limestone and shale.	Underwood, 1963

JEFF DAVIS COUNTY (JD)

JD-1	Tu	31°00' 103°57'	Tertiary	Lithology, unknown, intruded Tertiary volcanic rocks.	Barnes, 1982

JD-2	Tpt	30°55' 103°54'	Tertiary	Laccoliths, peralkaline trachyte, intruded Tertiary tuffaceous sediments and lava flows.	Barnes, 1982
JD-3	Tpt	30°52' 103°48'	Tertiary	Dikes, peralkaline trachyte, intruded Upper Cretaceous sedimentary rocks.	Eifler, 1951
JD-4	Tpt	30°51' 103°52'	Tertiary	Laccolith, peralkaline trachyte, surrounded by alluvium.	Barnes, 1982
JD-5	Tu	30°51' 103°53'	Tertiary	Lithology, unknown, intruded Upper Cretaceous sedimentary rocks.	Barnes, 1982
JD-6	Tpt	30°48' 103°53'	Tertiary	Laccoliths, peralkaline trachyte, intruded Upper Cretaceous sedimentary rocks.	Barnes, 1982
JD-7	Ts	30°33' 103°45'	Tertiary	Laccolith, syenite, intruded Tertiary volcanic rocks, mostly lava flows.	Smith, 1975
JD-8	Tpr	30°33' 103°46'	Tertiary	Sill, peralkaline rhyolite, intruded into Tertiary volcanic rocks, mostly lava flows.	Smith, 1975
JD-9	Tpr	30°32' 103°51'	Tertiary	Stock, peralkaline rhyolite, intruded Tertiary volcanic rocks, mostly lava flows.	Smith, 1975
JD-10	Tpt	30°31' 103°50'	Tertiary	Laccolith and dikes, peralkaline trachyte, intruded Tertiary volcanic rocks mostly lava flows.	Smith, 1975
JD-11	Tpr, Ts	30°30' 103°46'	Tertiary	Sill, peralkaline rhyolite; cut by laccolith of syenite, intruded Tertiary volcanic rocks, mostly lava flows.	Smith, 1975
JD-12	Tt	30°30' 103°45'	Tertiary	Trachyte, intruded Tertiary volcanic rocks, mostly lava flows.	Smith, 1975
JD-13	Ts	30°30' 103°56'	Tertiary	Stock, syenite, intruded Tertiary volcanic rocks, mostly lava flows.	Gorski, 1970
JD-14	Ts	30°29' 103°56'	Tertiary	Syenite?, intruded Tertiary volcanic rocks, mostly lava flows.	Gorski, 1970
JD-15	Tu	30°27' 103°55'	Tertiary	Lithology, unknown, intruded Tertiary volcanic rocks, mostly lava flows.	Gorski, 1970
JD-16	Tpr	30°26' 103°50'	Tertiary	Stocks, peralkaline rhyolite, intruded Tertiary volcanic rocks, mostly lava flows.	Gorski, 1970
JD-17	Tu	30°28' 103°42'	Tertiary	Lithology unknown, intruded Tertiary volcanic rocks, mostly lava flows.	Gorski, 1970

JD-18	Tt	30°51' 104°33'	Tertiary	Stock, trachyte, intruded Tertiary volcanic rocks.	Hay-Roe, 1957
JD-19	Ts	30°46' 104°32'	Tertiary	Stock, syenite, surrounded mostly by alluvium and Cretaceous Finlay Limestone.	Hay-Roe, 1957
JD-20	Tr	30°43' 104°34'	Tertiary	Laccoliths (trap-door), rhyolite, intruded Tertiary lava flows.	Wightman, 1953
JD-21	Tr	30°43' 104°31'	Tertiary	Laccolith, rhyolite, intruded Tertiary volcanic rocks.	Wightman, 1953
JD-22	Tb	30°42' 104°47'	Tertiary	Dike, basalt, intruded Cretaceous Ojinaga Formation.	Dasch and others, 1969
JD-23	Tb	30°36' 104°48'	Tertiary ~ 23 m.y.	Stock, basalt, intruded Tertiary tuffaceous sediments.	Dasch and others, 1969
JD-24	Tb	30°35' 104°43'	Tertiary	Dike, basalt, intruded Cretaceous Ojinaga Formation.	Dasch and others, 1969
JD-25	Tu	30°51' 104°13'	Tertiary	Stock?, lithology unknown, intruded Tertiary volcanic rocks, mostly lava flows.	Anderson, 1968
JD-26	Tfs	30°40' 104°20'	Tertiary	Laccolith?, feldspathoidal syenite, intruded Tertiary volcanic rocks.	Anderson, 1968
JD-27	Tg	30°40' 104°14'	Tertiary	Stock-laccolith?, granite, intruded Tertiary volcanic rocks.	Anderson, 1968
JD-28	Tg	30°32' 104°05'	Tertiary	Stock-laccolith?, granite, intruded Tertiary volcanic rocks.	Anderson, 1968

PRESIDIO COUNTY (P)

P-1	Tb	30°33' 104°52'	Tertiary	Sill, basalt, intruded tuffaceous sediments of Vieja Group (Tertiary).	Dasch and others, 1969
P-2	Tb	30°33' 104°44'	Miocene ~ 19 m.y.	Sill, basalt, intruded Cretaceous San Carlos Sandstone.	Dasch and others, 1969
P-3	Tt	30°07' 104°34'	Tertiary	Laccolith, trachyte, intruded Tertiary tuffaceous sediments.	Amsbury, 1958
P-4	Tr	30°03' 104°34'	Tertiary	Stocks or laccoliths, rhyolite, intruded limestone of Cretaceous Bluff Mesa Formation.	Amsbury, 1958
P-5	Tr	30°01' 104°30'	Oligocene 35.7±0.8, 34.7±0.8 m.y. (C.D. Henry, unpublished data)	Stocks, rhyolite, intruded Bluff Mesa Formation and Cox Sandstone of Cretaceous age and Tertiary volcanic rocks.	Amsbury, 1958
P-6	Tt	30°01' 104°24'	Tertiary	Stock, trachyte, intruded Tertiary volcaniclastic rocks.	Duex and Henry, 1981

P-7	Tqm	30°02' 104°21'	Oligocene 36.7±0.6 m.y. (C.W. Henry, unpublished data)	Stock, quartz monzonite, intruded Tertiary ash-flow tuff.	Duex and Henry, 1981
P-8	Tr	30°01' 104°18'	Tertiary	Stock, rhyolite, intruded Cretaceous limestone.	Duex and Henry, 1981
P-9	Tt	30°03' 104°18'	Tertiary	Stock, trachyte, intruded Tertiary lava flows.	Duex and Henry, 1981
P-10	Tpr	30°13' 104°19'	Tertiary	Stock, peralkaline rhyolite intruded Cretaceous Finlay Limestone.	Ramsey, 1961
P-11	Ts	30°18' 103°50'	Tertiary	Stock, syenite, intruded Tertiary volcanic rocks.	Parker, 1976

MAP SHEET 3
(Part of Emory Peak-Presidio Sheet)

BREWSTER COUNTY (B)

B-1	Tb	29°50' 103°35.5'	Tertiary	Sill?, basalt, intruded volcaniclastic rocks of Pruett Formation (Tertiary).	Goldich and Elms, 1949
B-2	Ts	29°46' 103°36'	Tertiary	Sill, syenite, intruded Cretaceous Boquillas Formation.	Goldich and Elms, 1949
B-3	Tfs	29°53' 103°27'	Tertiary	Sill, feldspathoidal syenite, intruded Cretaceous Boquillas Formation.	Eifler, 1943
B-4	Tfs	29°50' 103°25'	Tertiary	Stock, feldspathoidal syenite, intruded volcanic rocks of Tertiary Pruett Formation.	Eifler, 1943
B-5	Tfs	29°47' 103°21'	Tertiary	Sill, feldspathoidal syenite, intruded Cretaceous Pen and Boquillas Formations.	Eifler, 1943
B-6	Tfs	29°45' 103°20'	Tertiary	Sill, feldspathoidal syenite, intruded Cretaceous Pen, Boquillas, and Aguja Formations.	Eifler, 1943
B-7	Tfs	29°43' 103°18'	Tertiary	Sill?, feldspathoidal syenite. Intruded Cretaceous Aguja Formation.	Barnes, 1979a
B-8	Tb	29°43 103°23'	Tertiary	Basalt?, intruded Cretaceous Boquillas Formation.	Barnes, 1979a
B-9	Tb	29°39' 103°23'	Tertiary	Sill, basalt, intruded Cretaceous Boquillas Formation.	Barnes, 1979a
B-10	Ts	29°38' 103°27'	Tertiary	Sill, syenite, intruded Cretaceous Boquillas Formation.	Barnes, 1979a
B-11	Tu	29°38' 103°31'	Tertiary	Stock, intruded Cretaceous Boquillas Formation.	Barnes, 1979a
B-12	Tb	29°35' 103°28'	Tertiary	Sill-laccolith?, basalt?, intruded Cretaceous Boquillas Formation.	Barnes, 1979a

B-13	Tt	29°35' 103°30'	Tertiary	Laccolith, trachyte, intruded Cretaceous Boquillas Formation.	Moon, 1953
B-14	Tpr	29°31' 103°47'	Tertiary	Stock?, peralkaline rhyolite, intruded Cretaceous Boquillas Formation.	Erickson, 1953
B-15	Tu	29°30' 103°45'	Tertiary	Lithology unknown, intruded Cretaceous Santa Elena Limestone.	Barnes, 1979a
B-16	Tgb	29°29' 103°41'	Oligocene 33.5±0.7, 34.3±2.2 m.y. (F.W. McDowell, unpublished data)	Sill, gabbro, intruded Cretaceous Boquillas Formation.	Lonsdale, 1940
B-17	Tpr, Tb, Tr	29°31' 103°39'	Tertiary	Stock, peralkaline rhyolite in north one-half of area; sills, basalt rhyolite in south one-half; intruded Cretaceous Aguja and Pen Formations.	Lonsdale, 1940; Moon, 1953
B-18	Tb	29°30' 103°38'	Tertiary	Sill?, basalt, intruded Cretaceous Boquillas Formation.	Lonsdale, 1940
B-19	Tr	29°31' 103°36'	Tertiary	Stock-laccolith?, rhyolite intruded Cretaceous Santa Elena Limestone and Boquillas Formations.	Moon, 1953
B-20	Tb	29°32' 103°35'	Tertiary	Dome, basalt, intruded Cretaceous Aguja Formation.	Moon, 1953
B-21	Tr	29°31' 103°34'	Tertiary	Dome, rhyolite, intruded Cretaceous Santa Elena Limestone.	Moon, 1953
B-22	Ts	29°30' 103°33'	Tertiary	Sill?, syenite, intruded Cretaceous Boquillas Formation.	Moon, 1953
B-23	Tpr	29°30' 103°33'	Tertiary	Stocks?, laccoliths?, peralkaline rhyolite, intruded Cretaceous Boquillas and Pen Formations.	Lonsdale, 1940
B-24	Tr	29°28' 103°33'	Tertiary	Stock?, rhyolite, intruced Cretaceous Santa Elena Limestone.	Lonsdale, 1940
B-25	Ts	29°27' 103°33'	Tertiary	Sill, syenite, intruded Cretaceous Aguja Formation.	Lonsdale, 1940
B-26	Tb	29°25' 103°44'	Tertiary	Sill, basalt, intruded Cretaceous Santa Elena Limestone.	Lonsdale, 1940
B-27	Tb	29°25' 103°38'	Tertiary	Sill and laccolith, basalt, intruded Cretaceous Boquillas Formation.	Lonsdale, 1940
B-28	Tt	29°26' 103°34'	Tertiary	Sill, trachyte, intruded Cretaceous Aguja Formation.	Lonsdale, 1940
B-29	Tpt	29°27' 103°31'	Tertiary	Sill, peralkaline intruded Cretaceous Aguja Formation.	Lonsdale, 1940

B-30	Ts	29°26' 103°32'	Tertiary	Sill, syenite, intruded Cretaceous Aguja Formation.	Lonsdale, 1940
B-31	Ts Tgb	29°25' 103°35'	Tertiary	Sill?, syenite and gabbro, intruded Cretaceous Pen and Aguja Formations.	Lonsdale, 1940
B-32	Ts	29°23' 103°38'	Oligocene or Eocene 37.5±2.4 m.y. (Daily, 1979) 41.0±0.8 m.y. (F.W. McDowell, unpublished data)	Domes?, sill and dike, syenite, intruded Cretaceous Boquillas and Aguja Formations.	Daily, 1979; Lonsdale, 1940
B-33	Tpt, Tgb	29°24' 103°33'	Tertiary	Stock?, peralkaline trachyte; sill?, gabbro, intruded Cretaceous Aguja Formation.	Lonsdale, 1940
B-34	Tpt	29°25' 103°31'	Tertiary	Sill?, peralkaline trachyte, intruded Cretaceous Aguja Formation.	Lonsdale, 1940
B-35	Ts	29°24' 103°32'	Tertiary	Sill, syenite, intruded Cretaceous Aguja Formation.	Lonsdale, 1940
B-36	Tgb	29°21' 103°35'	Tertiary	Laccoliths, gabbro, intruded Cretaceous Pen and Aguja Formations.	Lonsdale, 1940
B-37	Tpt	29°21' 103°32'	Oligocene or Eocene 39.1±2.2 m.y. (Daily, 1979)	Laccolith; peralkaline trachyte, intruded Cretaceous Pen and Aguja Formations.	Daily, 1979; Lonsdale, 1940
B-38	Tu	29°22' 103°45'	Tertiary	Lithology unknown, intruded Cretaceous Santa Elena Limestone.	Lonsdale, 1940
B-39	Tr	29°21' 103°44'	Tertiary	Sill?, rhyolite, intruded Cretaceous Santa Elena Limestone.	Lonsdale, 1940
B-40	Ts	29°19' 103°46'	Tertiary	Sill?, syenite, intruded Cretaceous Santa Elena Limestone.	Yates and Thompson, 1959
B-41	Ts	29°19' 103°41'	Tertiary	Sill?, syenite, intruded Cretaceous Buda Limestone and Del Rio Clay.	Yates and Thompson, 1959
B-42	Ts	29°34' 103°24'	Tertiary	Sill-laccolith?, syenite?, intruded Cretaceous Aguja Formation.	Barnes, 1979a
B-43	Tb	29°35' 103°18'	Tertiary	Sill?, basalt, intruded Cretaceous Boquillas Formation.	Barnes, 1979a
B-44	Tm	29°30' 103°15'	Tertiary	Laccoliths, monzonite, intruded Cretaceous Aguja Formation.	Barnes, 1979a
B-45	Tpr	29°31' 103°29'	Tertiary	Stock?, peralkaline rhyolite, intruded Cretaceous Santa Elena Limestone and Boquillas and Aguja Formations.	Barnes, 1979a
B-46	Tu	29°32' 103°27'	Tertiary	Sill?, lithology unknown, intruded Cretaceous Dewester Formation.	Barnes, 1979a

B-47	Tt, Tpr	29°30' 103°25'	Tertiary	Sill?, trachyte, and stock-laccolith?, and sill?, peralkaline rhyolite, intruded Cretaceous Boquillas Formation and Santa Elena Limestone.	Barnes, 1979a
B-48	Tpr, Tpt, Tt	29°29' 103°29'	Eocene 41.3±2.5 m.y. (Daily, 1979)	Laccolith, peralkaline rhyolite and trachyte; stock, peralkaline trachyte; intruded Cretaceous Boquillas and Aguja Formations.	Barnes, 1979a; Daily, 1979
B-49	Tpr, Tr	29°27' 103°29'	Tertiary	Stock and sill, peralkaline rhyolite; laccolith and stock-laccolith?, rhyolite; intruded Cretaceous Buda Limestone, Del Rio Clay, and Boquillas and Aguja Formations.	Barnes, 1979a
B-50	Tb, Tpr	29°25' 103°25'	Tertiary	Sill?, basalt; laccolith and sill-laccolith, peralkaline rhyolite; intruded Cretaceous Boquillas Formation.	Barnes, 1979a
B-51	Tr	29°27 103°23'	Tertiary	Laccolith, rhyolite, intruded Cretaceous Boquillas Formation.	Barnes, 1979a
B-52	Tt	29°29' 103°24'	Tertiary	Laccolith, trachyte, intruded Cretaceous Boquillas Formation.	Barnes, 1979a
B-53	Tm, Tb	29°29' 103°21'	Tertiary	Laccolith, monzonite?; and stock?, basalt; intruded Cretaceous Aguja Formation.	Barnes, 1979a
B-54	Tgb	29°26' 103°27'	Eocene 42.4±0.7 m.y. (F. W. McDowell, unpublished data)	Dome, gabbro, intruded Santa Elena Limestone.	Barnes, 1979a
B-55	Tr, Tpr, Tt	29°24' 103°30'	Oligocene and Eocene 26.7±1.9 m.y. (rhyolite), 39.6±2.1 m.y. (peralkaline rhyolite) (Daily, 1979)	Laccolith, rhyolite and peralkaline rhyolite; laccolith?, trachyte; intruded Cretaceous Aguja and Pen Formations.	Barnes, 1979a; Daily, 1979
B-56	Tpt, Tpr	29°20' 103°30'	Oligocene and Eocene 35.2±2.7 m.y. (south body) 37.5±2.6 m.y. 41.0±2.9 m.y. (north body, peralkaline rhyolite)	Laccoliths, peralkaline trachyte and peralkaline rhyolite, intruded Cretaceous Aguja and Pen Formations.	Barnes, 1979a; Daily, 1979
B-57	Tr, Tpt	29°24' 103°27'	Tertiary	Sill?, rhyolite and peralkaline trachyte, intruded Cretaceous Aguja Formation.	Barnes, 1979a
B-58	Ts	29°24' 103°25'	Tertiary	Sill, questionable in north one-half, syenite, intruded Cretaceous Boquillas and Pen Formations.	Barnes, 1979a; Maxwell and others, 1967

B-59	Tgb, Tb, Tt, Ts	29°25' 103°23'	Tertiary	Sills, gabbro, basalt, and trachyte; laccolith, syenite; intruded Cretaceous Aguja and Javelina Formations.	Barnes, 1979a; Maxwell and others, 1967
B-60	Tpt	29°59' 103°02'	Tertiary	Dikes, peralkaline trachyte, intruded Pennsylvanian and Mississippian Tesnus Formation.	King, 1937
B-61	Tpt	29°51' 103°13'	Tertiary	Stocks, peralkaline trachyte, intruded Cretaceous Glen Rose and Del Carmen Formations.	King, 1937
B-62	Tpt	29°53' 103°02'	Tertiary	Stock, peralkaline trachyte, intruded Cretaceous Del Carmen Formation.	King, 1937
B-63	Tpt	29°49' 103°02'	Tertiary	Stock, peralkaline trachyte, surrounded by alluvium.	King, 1937
B-64	Tfs	29°49' 102°59'	Tertiary	Stock?, feldspathoidal syenite, intruded Cretaceous Santa Elena Limestone.	Barnes, 1979a; King, 1937
B-65	Tfs	29°45' 102°51'	Tertiary	Sill?, feldspathoidal syenite, intruded Cretaceous Santa Elena Limestone.	St. John, 1965
B-66	Tb	29°43' 103°00'	Tertiary	Sill?, stock at east end, basalt, intruded Cretaceous Boquillas Formation and Santa Elena Limestone.	St. John, 1965
B-67	Tb	29°39' 103°01'	Tertiary	Sill, basalt, intruded Cretaceous Boquillas Formation.	St. John, 1965

BREWSTER COUNTY (B) -- Continued
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B-68	Tgb	29°38' 103°11'	Tertiary	Sill, gabbro, intruded Cretaceous Aquija Formation.	Maxwell and others, 1967
B-69	Tgb	29°30' 103°05'	Tertiary	Sill, gabbro, intruded Cretaceous Boquillas Formation.	Maxwell and others, 1967
B-70	Tg	29°22' 103°04'	Tertiary	Laccolith, granite, intruded Cretaceous Boquillas and Pen Formations.	Maxwell and others, 1967
B-71	Tgb	29°26' 103°13'	Tertiary	Sill, gabbro, intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-72	Ts	29°24' 103°14'	Tertiary	Sill, syenite, intruded Eocene Canoe Formation.	Maxwell and others, 1967
B-73	Tg	29°24' 103°12'	Tertiary	Laccolith, granite, intruded Cretaceous Aguja Formation and Eocene Hannold Hill Formation.	Maxwell and others, 1967
B-74	Tpt	29°23' 103°11'	Tertiary	Sill, peralkaline trachyte, intruded Eocene Hannold Hill Formation.	Maxwell and others, 1967

B-75	Tpt	29°23' 103°26'	Tertiary	Stock?, peralkaline trachyte, intruded Cretaceous Javelina Formation and tuffaceous sedimentary rocks of Tertiary Chisos Formation.	Maxwell and others, 1967
B-76	Ts, Tgb	29°23' 103°23'	Tertiary	Laccolith, syenite, and sill, gabbro, intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-77	Tg	29°23' 103°19'	Tertiary	Laccolith and sill?, and sill at Painted Gap Hills; granite, intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-78	Tt	29°21' 103°24'	Tertiary	Sill and three small stocks in southwest part, trachyte, intruded Cretaceous Aguja and Javelina Formations and, Tertiary Chisos Formation.	Maxwell and others, 1967
B-79	Tr	29°21' 103°21'	Tertiary	Laccolith, rhyolite, intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-80	Tb, Tt, Ts	29°20' 103°22'	Tertiary	Sills, basalt, trachyte, and syenite; intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-81	Ts	29°20' 103°16'	Oligocene 26.1±1.9 m.y. (Daily, 1979)	Laccolith, syenite, intruded Tertiary Chisos Formation.	Daily, 1979; Maxwell and others, 1967
B-82	Tr, Tpr	29°19' 103°12'	Oligocene 28.9±2.4 m.y. (rhyolite) (Daily, 1979)	Sills, rhyolite and peralkaline rhyolite, intruded Cretaceous Aguja Formation and Tertiary Chisos Formation.	Daily, 1979; Maxwell and others, 1967; Ogley, 1979
B-83	Tfs	29°19' 103°28'	Tertiary	Sill, feldspathoidal syenite, intruded Cretaceous Javelina Formation.	Maxwell and others, 1967
B-84	Ts, Tt	29°16' 103°25'	Tertiary	Dike, syenite, and stocks, trachyte, intruded Cretaceous Aguja Formation and Tertiary Chisos Formation.	Maxwell and others, 1967
B-85	Tpr	29°16' 103°19'	Oligocene 31.3±2.3, 36.8±2.5 m.y. (Daily, 1979)	Stock, peralkaline rhyolite, intruded Tertiary Chisos Formation.	Daily, 1979; Maxwell and others, 1967; Ogley, 1979
B-86	Tt	29°19' 103°14'	Tertiary	Laccolith, trachyte, intruded Tertiary Chisos Formation.	Maxwell and others, 1967; Ogley, 1979
B-87	Tpr, Tt, Tpt	29°17' 103°13'	Tertiary	Stocks, peralkaline rhyolite, trachyte, and peralkaline trachyte, intruded Tertiary Chisos and South Rim Formations.	Maxwell and others, 1967; Ogley, 1979
B-88	Tpr, Tr	29°18' 103°11'	Miocene 17.0±1.2 m.y. (rhyolite) (Daily, 1979)	Dikes, peralkaline rhyolite, and sill, rhyolite, mostly surrounded by alluvium; intruded Tertiary Canoe and Chisos Formations.	Daily, 1979; Maxwell and others, 1967

B-89	Tr	29°16' 103°10'	Tertiary	Stock and sill (east body), rhyolite, intruded Tertiary Chisos and Canoe Formations.	Maxwell and others, 1967
B-90	Tpr, Tt	29°15' 103°15'	Tertiary	Dike, peralkaline rhyolite, and stock, trachyte, intruded Tertiary Chisos Formation.	Maxwell and others, 1967; Ogley, 1979
B-91	Tm	29°15 103°33'	Tertiary	Sill or laccolith, monzonite, intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-92	Tpr	29°14' 103°25'	Oligocene 27.2±1.9 m.y. (Daily, 1979)	Stock, peralkaline rhyolite, intruded Tertiary Chisos Formation.	Daily, 1979; Maxwell and others, 1967
B-93	Tpr, Tr,	29°11' 103°19'	Tertiary	Stock?, peralkaline rhyolite and rhyolite, intruded Tertiary Chisos Formation.	Maxwell and others, 1967
B-94	Tpr, Tr	29°13' 103°16'	Tertiary	Sill, peralkaline rhyolite and rhyolite, intruded Tertiary Chisos Formation.	Maxwell and others, 1967
B-95	Tpr	29°13' 103°14'	Tertiary	Dike-sill and sill, peralkaline rhyolite, intruded Tertiary Chisos Formation.	Maxwell and others, 1967
B-96	Tpr, Tgb	29°11' 103°16'	Tertiary	Stock, peralkaline rhyolite and sills, gabbro, intruded Cretaceous Aguja Formation and Tertiary Chisos Formations.	Maxwell and others, 1967
B-97	Tgb, Tpr, Tpt	29°10' 103°12'	Tertiary	Laccolith, gabbro; sill, peralkaline rhyolite; stock, peralkaline trachyte; intruded Tertiary Chisos Formation.	Maxwell and others, 1967
B-98	Ts, Tr	29°09' 103°17'	Tertiary	Stock?, syenite and stock, rhyolite, intruded Cretaceous Aguja Formation and Tertiary Chisos Formation.	Maxwell and others, 1967
B-99	Tgb, Tt	29°07' 103°15'	Tertiary	Sill, gabbro; dike, trachyte; intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-100	Ts	29°11' 103°09'	Tertiary	Sill, syenite, intruded Cretaceous Aguja and Javelina Formations. Western outcrops surrounded by alluvium.	Maxwell and others, 1967
B-101	Tr	29°11' 103°10'	Tertiary	Laccolith, rhyolite, intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-102	Tgb, Tr	29°07 103°11'	Tertiary	Sill, gabbro, and sill?, rhyolite, intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-103	Tr	29°13' 103°06'	Tertiary	Stock?, rhyolite, intruded Cretaceous Aguja Formation.	Maxwell and others, 1967
B-104	Tgb	29°11' 103°07'	Tertiary	Sill, gabbro, intruded Cretaceous Javelina Formation.	Maxwell and others, 1967

B-105	Tgb, Tr	29°05' 103°10'	Oligocene or Eocene 34.4±3.0 m.y. (gabbro) (F.W. McDowell, unpublished data)	Sill, gabbro and rhyolite, intruded Cretaceous Boquillas, Pen, and Aguja Formations.	Maxwell and others, 1967
B-106	Ts, Tgb, Tr	29°05' 103°07'	Tertiary	Sills, syenite, gabbro, and rhyolite, intruded Cretaceous Boquillas, Pen, and Aguja Formations.	Maxwell and others, 1967
B-107	Tb, Tgb	29°14' 103°44'	Oligocene 32.6±0.6 m.y. (basalt) (F.W. McDowell, unpublished data)	Sill, basalt and gabbro, intruded Cretaceous Boquillas Formation.	Maxwell and others, 1967
B-108	Tb, Ts, Tgb	29°11' 103°35'	Tertiary	Sills and dikes, basalt and syenite; sills, gabbro; syenite, intruded Cretaceous Aguja and Pen Formations.	Maxwell and others, 1967

PRESIDIO COUNTY (P)

P-1	Tqm	29°58' 104°22'	Oligocene 36.7±0.6, 36.5±0.6 m.y. (C.D. Henry, unpublished data)	Stock (resurgent dome), quartz monzonite, propylitic alteration, intruded Pennsylvanian and Permian sandstone, shale, and limestone, and Tertiary lava flows.	Duex and Henry, 1981
P-2	Tpr, Tt	29°59' 104°30'	Tertiary	Stocks, peralkaline rhyolite and trachyte (southwest outcrop); dike (southeast outcrop), trachyte, intruded mostly lava flows of Tertiary Chinati Mountains Group.	Amsbury, 1958; Cepeda and Henry, 1983
P-3	Tqm	29°55' 104°30'	Oligocene 32.0±0.7 m.y. (Cepeda and Henry, 1983)	Stock (resurgent dome), quartz monzonite, intruded mostly lava flows of Tertiary Chinati Mountains Group.	Amsbury, 1958; Cepeda and Henry, 1983
P-4	Tpr	29°58' 105°25'	Oligocene 32.3±0.7 m.y.	Stocks-dikes, peralkaline rhyolite, intruded mostly lava flows of Tertiary Chinati Mountains Group.	Cepeda and Henry, 1983
P-5	Tr	29°54' 104°22'	Tertiary	Domes-flows and dome (smaller outcrop), rhyolite, intruded mostly lava flows of Tertiary Chinati Mountains Group.	Cepeda and Henry, 1983
P-6	Tqm	29°48' 104°24'	Tertiary	Stock and stock-sills, quartz monzonite, intruded Permian sandstone and limestone.	Cepeda and Henry, 1983; Price and Henry, 1982
P-7	Tt	29°48' 104°22'	Tertiary	Sills, trachyte, intruded Permian sandstone and limestone, and Cretaceous Shafter and Del Carmen Formations.	Cepeda and Henry, 1983; Rix, 1953

P-8	Tr	29°45' 104°16'	Tertiary	Laccolith, rhyolite, intruded sandstone and shale of Permian Ross Mine Formation, sandstone of Cretaceous Presidio Formation, and Tertiary volcanic rocks.	Rix, 1953
P-9	Tpr	29°46' 104°09'	Oligocene 34.3±0.7 m.y. (C.D. Henry, unpublished data)	Stock-laccolith?, peralkaline rhyolite, surrounded by alluvium.	Hardisty, 1982
P-10	Tt	29°43' 104°12'	Tertiary	Stock?, trachyte, intruded Tertiary volcanic rocks.	Dietrich, 1965
P-11	Tb	29 37' 104 09'	Miocene 18.0±0.4 m.y. (McDowell, 1979)	Stock, basalt, intruded lava flows of Tertiary Rawls Formation.	Dietrich, 1965; McDowell, 1979
P-12	Tt	30°02' 104°03'	Tertiary	Dome or laccolith, trachyte, intruded Tertiary volcanic rocks.	Dietrich, 1965
P-13	Tt	30°28' 104°06'	Tertiary	Sill-dike, trachyte, intruded Tertiary volcanic rocks.	McKnight, 1969
P-14	Tb	29°25' 104°06'	Tertiary	Sill?, basalt, intruded Tertiary volcanic rocks.	McKnight, 1969
P-15	Ts	29°27' 104°00'	Oligocene 26.8±0.4 m.y. (F.W. McDowell, unpublished data)	Stock, syenite, intruded Tertiary volcanic rocks.	McKnight, 1969
P-16	Tb	29°50' 103°56'	Tertiary	Sill?, basalt, intruded Tertiary volcanic rocks.	Barnes, 1979a
P-17	Tb	29°48' 103°57'	Tertiary	Stock, basalt, intruded Tertiary volcanic rocks and tuffaceous sediments of Oligocene Tascotal Formation.	Barnes, 1979a
P-18	Tb	29°45' 103°57'	Tertiary	Cone sheet, basalt, intruded Tertiary volcanic rocks and tuffaceous sediments of Oligocene Tascotal Formation.	Erickson, 1953
P-19	Tb	29°43' 103°59'	Tertiary	Stock, basalt, intruded Tertiary volcanic rocks and tuffaceous sediments of Oligocene Tascotal Formation.	Erickson, 1953
P-20	Tb, Ts	29°45' 103°50'	Tertiary	Dikes, basalt and syenite, intruded Tertiary volcanic rocks and tuffaceous sediments of Tertiary Pruett Formation.	Erickson, 1953
P-21	Ts	29°37' 103°48'	Tertiary	Dome, syenite, intruded volcanic rocks of Oligocene Mitchell Mesa Welded Tuff.	Erickson, 1953
P-22	Ts	29°31' 103°59'	Tertiary	Dike and domes, syenite, intruded lava flows of Tertiary Rawls Formation.	Erickson, 1953

P-23	Tpr	29°30' 103°48'	Oligocene 35.2±0.8 m.y. (southeast outcrop) (F.W. McDowell, unpublished data)	Stock, peralkaline rhyolite, intruded Tertiary volcanic rocks and lava flows of Tertiary Rawls Formation.	Erickson, 1953
P-24	Tr	29°27' 103°48'	Oligocene 37.5±0.8 m.y. (sill) (F.W. McDowell unpublished data)	Sill and central stock (laccolithic dome), rhyolite, intruded Cretaceous Glen Rose Formation and lower Paleozoic sandstone, shale, and limestone.	Lonsdale, 1940
P-25	Tt, Tb, Tpr	29°28' 103°53'	Tertiary	Dome, trachyte and basalt; stock, peralkaline rhyolite into Tertiary volcanic rocks and lava flows of Tertiary Rawls Formation.	McKnight, 1969
P-26	Tt, Tpr	29°29' 103°57'	Tertiary	Dome, trachyte; laccolith?, peralkaline rhyolite, intruded Tertiary volcanic rocks.	McKnight, 1969
P-27	Tgb, Tb	29°24' 104°00'	Tertiary	Dome, gabbro and basalt, intruded Tertiary volcanic rocks.	McKnight, 1969
P-28	Tb	29°25' 103°56'	Tertiary	Dome, basalt, intruded Tertiary volcanic rocks.	McKnight, 1969
P-29	Ts	29°19' 103°52'	Tertiary	Laccoliths, syenite, intruded Tertiary volcanic rocks and Cretaceous Boquillas Formation.	McKnight, 1969
P-30	Tr	29°19' 103°48'	Tertiary	Sill, rhyolite, intruded Cretaceous Boquillas Formation.	McKnight, 1969

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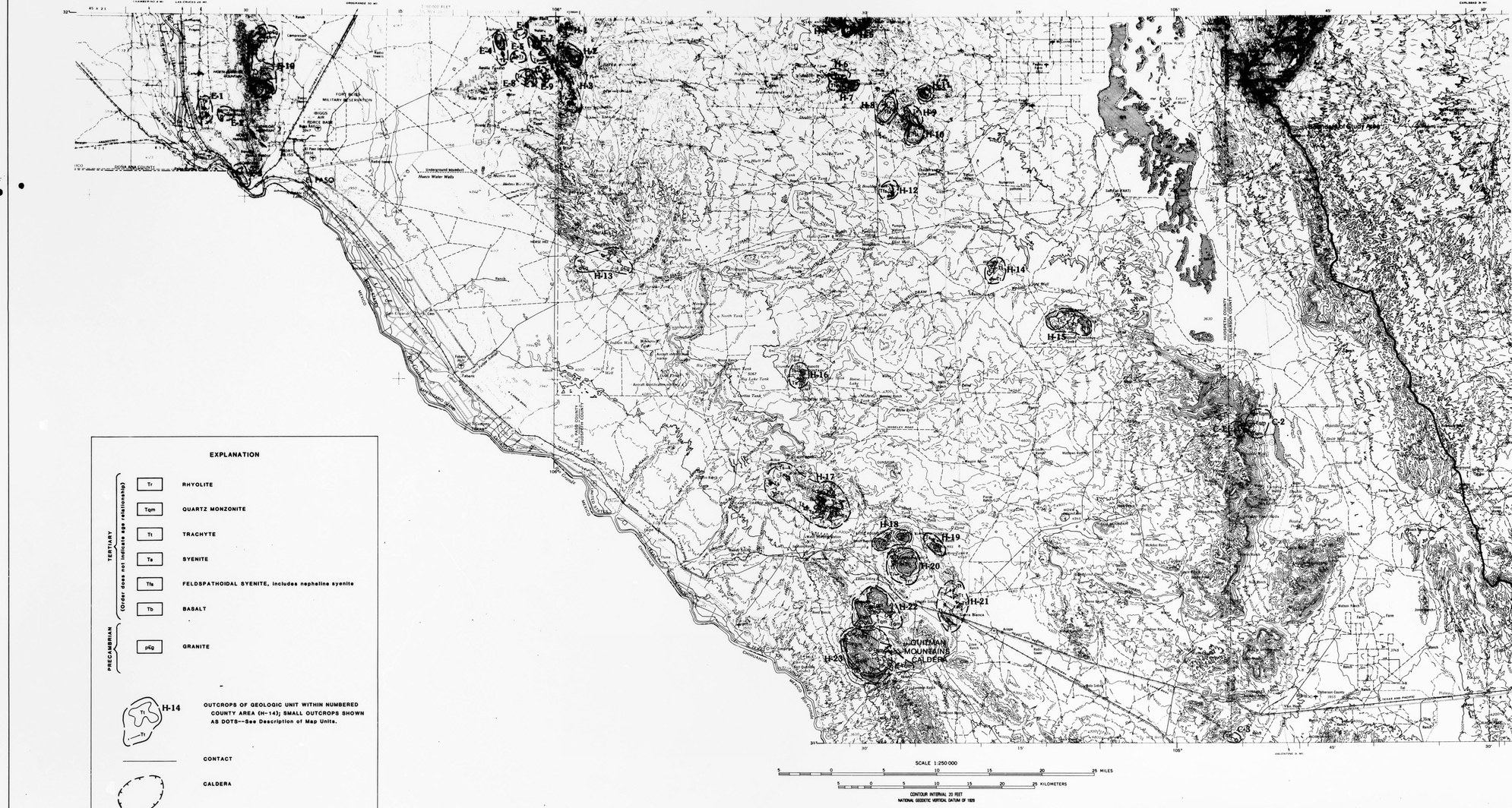
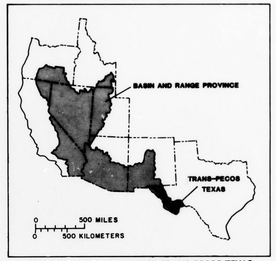
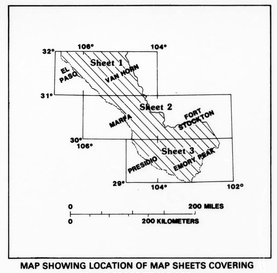




MAP SHOWING LOCATION OF TRANS-PECOS TEXAS AREA WITHIN BASIN AND RANGE PROVINCE



MAP SHOWING LOCATION OF MAP SHEETS COVERING TRANS-PECOS TEXAS AREA

EXPLANATION

PRECAMBRIAN
- p€g — GRANITE

TERTIARY (Order does not indicate age relationship)
- Tr — RHYOLITE
- Tqm — QUARTZ MONZONITE
- Tt — TRACHYTE
- Ts — SYENITE
- Tfs — FELDSPATHOIDAL SYENITE, includes nepheline syenite
- Tb — BASALT

H-14 — OUTCROPS OF GEOLOGIC UNIT WITHIN NUMBERED COUNTY AREA (H-14); SMALL OUTCROPS SHOWN AS DOTS--See Description of Map Units.

CONTACT

CALDERA

MAP SHOWING OUTCROPS AND LITHOLOGY OF INTRUSIVE ROCKS, BASIN AND RANGE PROVINCE AND VICINITY, TRANS-PECOS TEXAS

Compiled by
Christopher D. Henry and Gail L. Fisher

1984

Base maps from U.S. Geological Survey: El Paso sheet, 1974; Van Horn sheet, 1975

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DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Prepared in cooperation with the
TEXAS BUREAU OF ECONOMIC GEOLOGY

WATER-RESOURCES INVESTIGATIONS REPORT 83-4121-
SHEET 2 OF

EXPLANATION

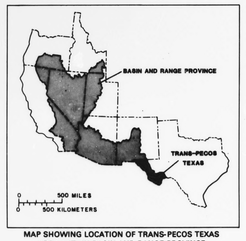
TERTIARY (Order does not indicate age relationship)

- Tpr — PERALKALINE RHYOLITE
- Tr — RHYOLITE
- Tg — GRANITE
- Tqm — QUARTZ MONZONITE
- Tpt — PERALKALINE TRACHYTE
- Tt — TRACHYTE
- Ts — SYENITE
- Tfs — FELDSPATHOIDAL SYENITE, includes nepheline syenite
- Tb — BASALT
- Tu — LITHOLOGY UNKNOWN

P-2 — OUTCROPS OF GEOLOGIC UNIT WITHIN NUMBERED COUNTY AREA (P–2); OUTCROPS SHOWN AS A SINGLE LINE WHERE TOO THIN TO SHOW UPPER AND LOWER CONTACTS AT MAP SCALE—See Description of Map Units.

CONTACT

CALDERA



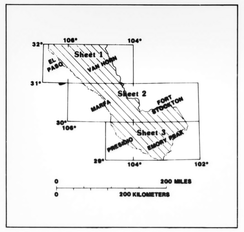
MAP SHOWING LOCATION OF TRANS-PECOS TEXAS AREA WITHIN BASIN AND RANGE PROVINCE

MAP SHOWING OUTCROPS AND LITHOLOGY OF INTRUSIVE ROCKS, BASIN AND RANGE PROVINCE AND VICINITY, TRANS-PECOS TEXAS

Compiled by

Christopher D. Henry and Gail L. Fisher

1984



MAP SHOWING LOCATION OF MAP SHEETS COVERING TRANS-PECOS TEXAS AREA

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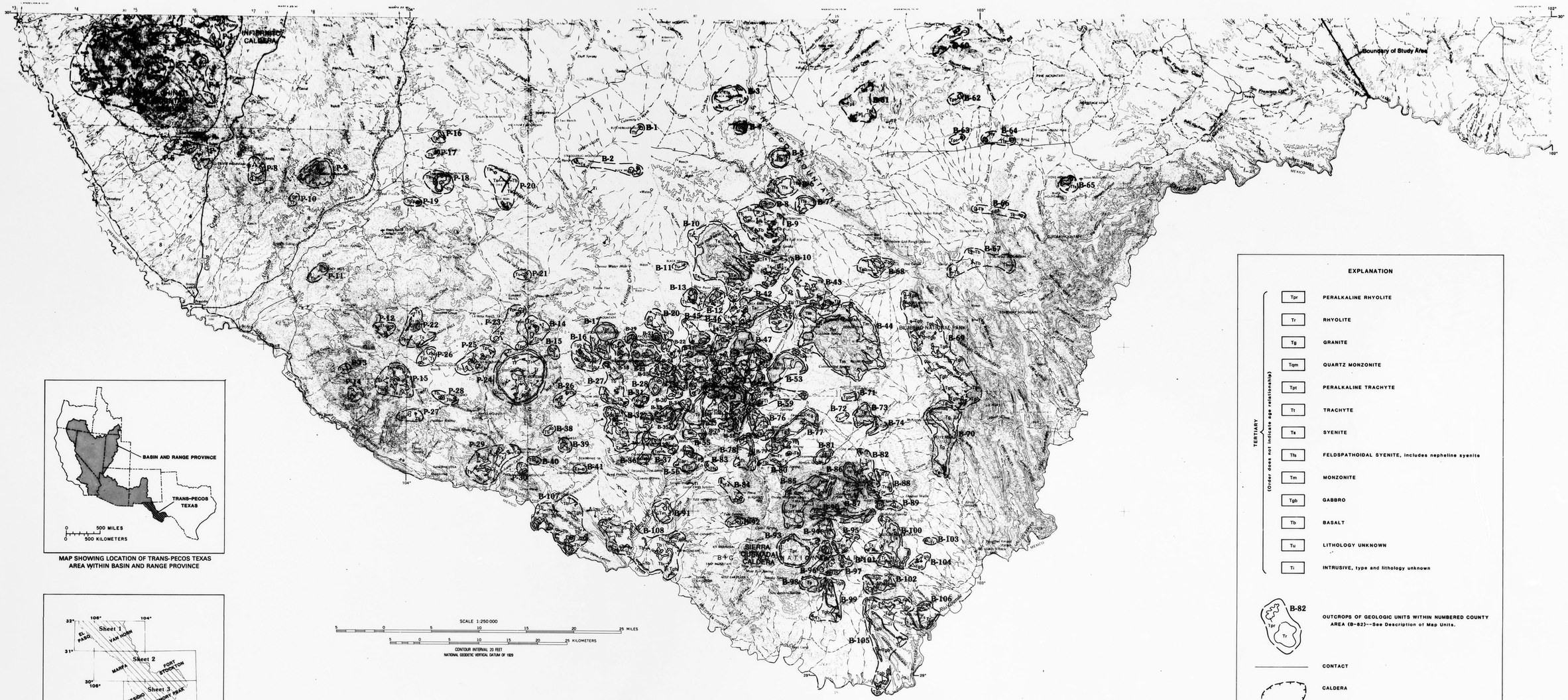
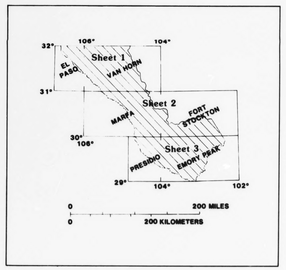
WATER-RESOURCES INVESTIGATIONS REPORT 83-4121-D
SHEET 3 OF 3


Boundary of Study Area
WHITE SIDE CALDERA
SIERRA QUEMADA CALDERA
BIG BEND NATIONAL PARK
SCALE 1:250 000
5 0 5 10 15 20 25 MILES
5 0 5 10 15 20 25 KILOMETERS
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MAP SHOWING LOCATION OF TRANS-PECOS TEXAS AREA WITHIN BASIN AND RANGE PROVINCE



MAP SHOWING LOCATION OF MAP SHEETS COVERING TRANS-PECOS TEXAS AREA

EXPLANATION

TERTIARY (Order does not indicate age relationship)

- Tpr — PERALKALINE RHYOLITE
- Tr — RHYOLITE
- Tg — GRANITE
- Tqm — QUARTZ MONZONITE
- Tpt — PERALKALINE TRACHYTE
- Tt — TRACHYTE
- Ts — SYENITE
- Tfs — FELDSPATHOIDAL SYENITE, includes nepheline syenite
- Tm — MONZONITE
- Tgb — GABBRO
- Tb — BASALT
- Tu — LITHOLOGY UNKNOWN
- Ti — INTRUSIVE, type and lithology unknown

B-82 (Tpr, Tr) — OUTCROPS OF GEOLOGIC UNITS WITHIN NUMBERED COUNTY AREA (B-82)--See Description of Map Units.

CONTACT

CALDERA

MAP SHOWING OUTCROPS AND LITHOLOGY OF INTRUSIVE ROCKS, BASIN AND RANGE PROVINCE AND VICINITY, TRANS-PECOS TEXAS

Compiled by

Christopher D. Henry and Gail L. Fisher

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Base maps from U.S. Geological Survey: Presidio sheet, 1969; Emory Peak sheet, 1977

Outcrops from Barnes (1979a)